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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,280	12/15/2004	Motoshi Kawamura	F-8507	3579

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EXAMINER	
KRAUSE, JUSTIN MITCHELL	
ART UNIT	**PAPER NUMBER**
3682	

MAIL DATE	DELIVERY MODE
10/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/518,280	KAWAMURA ET AL.	
	Examiner	Art Unit	
	Justin Krause	3682	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 December 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

For example:

In claim 1, the phrase, "A double row angular contact ball bearing with vertex of contact angles outside of bearing".

In claim 2, "this outer raceway" is improper and there is no antecedent basis.

In claim 5, it is unclear how an outer peripheral portion of each seal is fixed to the two counter bores of the outer ring when the outer ring counter bores are at opposite ends. Similarly, the claim is written such that each seal contacts both inner rings, it is unclear how this occurs.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5, 6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Hughes (US Patent 2,037,982).

A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Hughes discloses a bearing apparatus for supporting a shaft comprising

A double row angular contact ball bearing with vertex of contact angles outside of bearing (fig 2)

A grease is filled (col 2, lines 16-19) in a bearing internal space sealed with seals (30) at both ends in a shaft direction.

Regarding claim 2, the bearing further comprises:

A single outer ring (10) having double raceway surfaces in a shaft ditrection and counterbores at both ends in a shaft direction

A first and second inner rings (20) pairing with one raceway surface of the outer raceway having a counterbore at an inner edge in the shaft direction

A plurality of balls (14) between the inner and outer rings.

Regarding claim 5, as best understood, an outer peripheral portion of each seal is fixed to the two counterbores of the outer ring and comprises a lip portion at an inner periphery having a shape for contacting to each shoulder portion of the two inner rings and being able to be opened towards the outside of the bearing (fig 5).

Regarding claim 6, the lip portion of the seal on the pinion side is compulsorily pressed into the shoulder portion of the inner ring by means of a spring ring (34,36)

Regarding claim 8, Hughes further discloses a nut (28) screwed and fixed on a screw shaft portion, and a pinion gear (144) on one end, the screw shaft at the other end (fig 5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes as applied to claim 1 above.

Hughes does not disclose a specific range of contact angles, however the selection of a contact angle suitable for supporting a desired load is within the level of ordinary capabilities of one skilled in the art.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hughes to include a contact angle between 30 and 45 degrees for the desired purpose of supporting both axial and thrust loads simultaneously. The results of definition the range are predictable and could be obtained by one skilled in the art through routine experimentation.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes as applied to claims 1 and 2 above, further in view of Takata et al (US Patent 6,299,357).

Hughes does not provide radii of curvature of the raceways.

Takata teaches an inner raceway with a radius of curvature ranging from 50.5-56% of the diameter of the ball and an outer raceway surface ranging from 51-55% of the diameter of the ball (col 4, lines 37-50) for the purpose of providing a bearing with minimal offset in an axial direction and to provide low inclination when the bearing is under load (Col 2, lines 44-48).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hughes to include radii of curvature within the claimed ranges for the desired purpose of minimizing axial offset and providing a low inclination angle when the bearing is under load as taught by Takata.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes as applied to claim 1 above, further in view of Ishiguro et al (US Patent 7,217,036).

Hughes does not disclose an air flow portion in a seal.

Ishiguro teaches an airflow portion (12) in the seal on the side opposite to the operational end (analogous to the pinion end) for the purpose of equalizing pressure inside and outside of the bearing (Col 1 lines 20-30).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hughes to include a seal on the counter-pinion gear side for the desired purpose of equalizing the pressure inside and outside of the inner bearing cavity as taught by Ishiguro.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin Krause whose telephone number is 571-272-3012. The examiner can normally be reached on Monday - Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on 571-272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMK 10/16/07

Thomas R. Hannon
Primary Examiner